Citation:

Roseman, MG. Food safety perceptions and behaviors of participants in congregate-meal and home-delivered-meal programs. *J Environ Health*. 2007; 70 (2): 13-21.

PubMed ID: 17886577

Study Design:

Cross-Sectional Study

Class:

D - Click here for explanation of classification scheme.

Research Design and Implementation Rating:

NEUTRAL: See Research Design and Implementation Criteria Checklist below.

Research Purpose:

To provide knowledge about the food handling practices of home-delivered meals of elderly people participating in the congregate-meal and home-delivered-meal program.

Inclusion Criteria:

- Participants in the congregate meal program or home-delivered meals program
- Those at least 60 years of age
- Residents in one of nine counties in Kentucky recruited for participation.

Exclusion Criteria:

- Those below the age of 60
- Those not participating in elderly nutrition programs
- Those with limited cognitive abilities as determined by interviewers.

Description of Study Protocol:

Recruitment

Participants were recruited for participation through senior centers after approval and cooperation from the management.

Design

Cross-sectional study design

Dietary Intake/Dietary Assessment Methodology

Not applicable. Some questions referenced food safety behaviors.

Blinding used

Not applicable

Intervention

Not applicable

Statistical Analysis

- Descriptive statistics were computed for demographic characteristics
- Cross-tabulation tests were used to investigate associations between demographic variables and respondents' food safety perceptions, food handling behaviors and emergency food preparedness
- Fisher's exact Chi-square tests were used to investigate associations between demographic variables and respondents' food safety perceptions, food handling behaviors and emergency food preparedness
- All analyses were conducted with SPSS 13.0
- A statistical significance of $P \leq 0.05$ was used for all tests.

Data Collection Summary:

Timing of Measurements

Surveys were administered orally to subjects during a one-time personal interview by registered dietitians and dietetic interns.

Dependent Variables

Participation in the congregate-meal and home-delivered meal programs

Independent Variables

A survey that included 21 questions regarding food safety perception questions, food safety behavior questions and emergency food preparedness.

Control Variables

- Age
- Participation in elderly nutrition programs (either congregate meal program or home-delivered meal program).

Description of Actual Data Sample:

- ***Initial N****:* 246
- ***Attrition (final N):*** 220
- ***Age****:* 60 years and older; largest groups were those aged 71-80 and 81-90 (both age groups made up 35.7% of the study population)
- ***Ethnicity****:* 85% of the population was white
- ***Other relevant demographics****:*
    - 52% had not completed high school or obtained a high school equivalent degree.

- Fewer than 20% of respondents had some college or a college degree
- 73% were divorced, separated or widowed
- 9% were single
- 18 % were married
- 69% of the study population lived alone.

- ***Anthropometrics:*** Not applicable
- ***Location:*** Nine counties in Kentucky.

Summary of Results:

Key Findings

- 21.7% reported not throwing away casseroles or other food dishes that had been left on the counter for two or more hours (41.2% of men vs. 18.0% of women, P=0.004)
- 50.0% of the oldest group (≥91 years) and 36.1 percent of the ages 60 to 70 years group, kept all or part of their unconsumed meal on the counter instead of the refrigerator, and 16.4% were somewhat or not likely to wash hands before eating their meals
- Whereas 92.7% of white respondents indicated that they would throw away a meal that was left on the counter overnight, this was true for only 77.4% of their non-white counterparts. The risk of practicing this behavior was also lower among the less educated and those in younger age brackets:
  - 95.2% of those with a high school education would throw away the meal compared to 76.7% or those with some college or a B.S. degree (P=0.007)
  - 96.1% of 60-70 year olds would throw away the meal compared to 83.3% of the 81-90 year olds (P=0.030)
- 33% of elderly respondents stated that at least half the time they saved their congregate meal or home-delivered meal (HDM) to eat later in the day instead of at the time they received it
- Among all marital groups, 18 to 22 % of the sample ate their meal more than two hours after it was delivered
- 50% of the oldest group (91 years of age or older) kept all or a part of their unconsumed meal on the counter instead of in a refrigerator or a warm oven; also, 36% who were 60 to 70 years of age practiced this behavior
- Males, along with those who lived with someone, were also significantly more likely to leave leftovers on the counter for two hours or more before throwing them away
- Seniors participating in the congregate-meal program were significantly more likely to wash their hands before eating than were seniors who participated in the HDM program
- Elderly people who had attended some college or had a college degree were more likely to have a cooler, frozen gel packs and refrigerator or freezer thermometer in their homes than were those with less formal education.

Author Conclusion:

- Study findings are a reminder that those in the elderly population should adhere to safe food practices
- Many participants of the ENP (elderly nutrition program) practice risky food handling behaviors
- As participants age, risky food handling behaviors may rise due to physical and mental impairments

- Those in the elderly population have misconceptions that are important to overall health
- Many in this population believe that foodborne illness were not likely to happen to them
- There is a need to provide proper food safety education to participants in Elderly Nutrition Programs.

Reviewer Comments:

- *Recruitment methods of actual subjects unclear*
- *Study included only nine counties in Kentucky, thus results can only be generalized to study population and not the entire elderly population.*

Research Design and Implementation Criteria Checklist: Primary Research

Relevance Questions		
1.	Would implementing the studied intervention or procedure (if found successful) result in improved outcomes for the patients/clients/population group? (Not Applicable for some epidemiological studies)	???
2.	Did the authors study an outcome (dependent variable) or topic that the patients/clients/population group would care about?	Yes
3.	Is the focus of the intervention or procedure (independent variable) or topic of study a common issue of concern to nutrition or dietetics practice?	Yes
4.	Is the intervention or procedure feasible? (NA for some epidemiological studies)	Yes

Validity Questions		
1.	**Was the research question clearly stated?**	Yes
1.1.	Was (were) the specific intervention(s) or procedure(s) [independent variable(s)] identified?	Yes
1.2.	Was (were) the outcome(s) [dependent variable(s)] clearly indicated?	???
1.3.	Were the target population and setting specified?	Yes
2.	**Was the selection of study subjects/patients free from bias?**	???
2.1.	Were inclusion/exclusion criteria specified (e.g., risk, point in disease progression, diagnostic or prognosis criteria), and with sufficient detail and without omitting criteria critical to the study?	???
2.2.	Were criteria applied equally to all study groups?	???
2.3.	Were health, demographics, and other characteristics of subjects described?	No

2.4.	Were the subjects/patients a representative sample of the relevant population?	???
3.	**Were study groups comparable?**	N/A
3.1.	Was the method of assigning subjects/patients to groups described and unbiased? (Method of randomization identified if RCT)	N/A
3.2.	Were distribution of disease status, prognostic factors, and other factors (e.g., demographics) similar across study groups at baseline?	???
3.3.	Were concurrent controls used? (Concurrent preferred over historical controls.)	???
3.4.	If cohort study or cross-sectional study, were groups comparable on important confounding factors and/or were preexisting differences accounted for by using appropriate adjustments in statistical analysis?	???
3.5.	If case control or cross-sectional study, were potential confounding factors comparable for cases and controls? (If case series or trial with subjects serving as own control, this criterion is not applicable. Criterion may not be applicable in some cross-sectional studies.)	???
3.6.	If diagnostic test, was there an independent blind comparison with an appropriate reference standard (e.g., "gold standard")?	N/A
4.	**Was method of handling withdrawals described?**	No
4.1.	Were follow-up methods described and the same for all groups?	???
4.2.	Was the number, characteristics of withdrawals (i.e., dropouts, lost to follow up, attrition rate) and/or response rate (cross-sectional studies) described for each group? (Follow up goal for a strong study is 80%.)	???
4.3.	Were all enrolled subjects/patients (in the original sample) accounted for?	No
4.4.	Were reasons for withdrawals similar across groups?	???
4.5.	If diagnostic test, was decision to perform reference test not dependent on results of test under study?	N/A
5.	**Was blinding used to prevent introduction of bias?**	???
5.1.	In intervention study, were subjects, clinicians/practitioners, and investigators blinded to treatment group, as appropriate?	N/A
5.2.	Were data collectors blinded for outcomes assessment? (If outcome is measured using an objective test, such as a lab value, this criterion is assumed to be met.)	???
5.3.	In cohort study or cross-sectional study, were measurements of outcomes and risk factors blinded?	???

5.4.	In case control study, was case definition explicit and case ascertainment not influenced by exposure status?	N/A
5.5.	In diagnostic study, were test results blinded to patient history and other test results?	N/A
6.	**Were intervention/therapeutic regimens/exposure factor or procedure and any comparison(s) described in detail? Were interveningfactors described?**	???
6.1.	In RCT or other intervention trial, were protocols described for all regimens studied?	N/A
6.2.	In observational study, were interventions, study settings, and clinicians/provider described?	N/A
6.3.	Was the intensity and duration of the intervention or exposure factor sufficient to produce a meaningful effect?	N/A
6.4.	Was the amount of exposure and, if relevant, subject/patient compliance measured?	N/A
6.5.	Were co-interventions (e.g., ancillary treatments, other therapies) described?	N/A
6.6.	Were extra or unplanned treatments described?	N/A
6.7.	Was the information for 6.4, 6.5, and 6.6 assessed the same way for all groups?	N/A
6.8.	In diagnostic study, were details of test administration and replication sufficient?	N/A
7.	**Were outcomes clearly defined and the measurements valid and reliable?**	Yes
7.1.	Were primary and secondary endpoints described and relevant to the question?	Yes
7.2.	Were nutrition measures appropriate to question and outcomes of concern?	N/A
7.3.	Was the period of follow-up long enough for important outcome(s) to occur?	N/A
7.4.	Were the observations and measurements based on standard, valid, and reliable data collection instruments/tests/procedures?	Yes
7.5.	Was the measurement of effect at an appropriate level of precision?	Yes
7.6.	Were other factors accounted for (measured) that could affect outcomes?	???
7.7.	Were the measurements conducted consistently across groups?	Yes
8.	**Was the statistical analysis appropriate for the study design and type of outcome indicators?**	Yes
8.1.	Were statistical analyses adequately described and the results reported appropriately?	Yes

8.2.	Were correct statistical tests used and assumptions of test not violated?	Yes
8.3.	Were statistics reported with levels of significance and/or confidence intervals?	Yes
8.4.	Was "intent to treat" analysis of outcomes done (and as appropriate, was there an analysis of outcomes for those maximally exposed or a dose-response analysis)?	???
8.5.	Were adequate adjustments made for effects of confounding factors that might have affected the outcomes (e.g., multivariate analyses)?	???
8.6.	Was clinical significance as well as statistical significance reported?	???
8.7.	If negative findings, was a power calculation reported to address type 2 error?	N/A
9.	**Are conclusions supported by results with biases and limitations taken into consideration?**	???
9.1.	Is there a discussion of findings?	Yes
9.2.	Are biases and study limitations identified and discussed?	???
10.	**Is bias due to study's funding or sponsorship unlikely?**	Yes
10.1.	Were sources of funding and investigators' affiliations described?	Yes
10.2.	Was the study free from apparent conflict of interest?	Yes